



AGE, SEX, AND SIZE COMPOSITION OF PACIFIC HERRING,
(Clupea harengus pallasi), FROM EASTERN BERING SEA COASTAL
SPAWNING SITES, ALASKA, 1986

By:

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September 1987

ALASKA DEPARTMENT OF FISH AND GAME
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Don W. Collinsworth
Commissioner

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Juneau, Alaska

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ABSTRACT

Samples of Pacific herring, *Clupea harengus pallasi*, were collected from seven eastern Bering Sea commercial fishing districts and a potential commercial fishing area in Kuskokwim Bay during the 1986 spring spawning migration. Samples were obtained from commercial purse seine, beach seine and gill net catches, and Alaska Department of Fish and Game variable mesh test gill net and volunteer commercial test gill net and purse seine landings. Samples within each of the seven districts were grouped by gear type, location, and sampling week. A total of 14,601 Pacific herring was examined for age, sex, and size information. Overall, the 1978 and 1977 year classes (ages 8 and 9, respectively) were most abundant (64%). Differences in year-class abundance between districts were evident with the strength of younger year classes (ages 3 - 5) increasing northward. Mean length within each age class progressively decreased in samples taken northward from Bristol Bay to Norton Sound. Generally, male and female ratios remained equal in most season samples. The 1986 eastern Bering Sea Pacific herring spawning biomass was estimated to be 136,352 metric tons.

KEY WORDS: Pacific herring, *Clupea harengus pallasi*, Bering Sea, biological sampling (A-W-L)

INTRODUCTION

The purpose of this report is to document the age, sex, and size composition data of the 1986 eastern Bering Sea Pacific herring (*Clupea harengus pallasi*) spawning biomass, and provide the information for developing a herring data base. Similar studies were conducted annually by the Alaska Department of Fish and Game (ADF&G) since 1976 (McBride et al. 1981, McBride and Whitmore 1981; Fried et al. 1982a, 1982b, 1983a, 1983b, and 1984; Lebida et al. 1985a and 1986).

METHODS

Study Area Description

The study area comprised the coastal waters from Cape Constantine to Cape Douglas (Figures 1 and 2). Seven regulatory commercial fishing districts, Togiak, Security Cove, Goodnews Bay, Nelson Island, Nunivak Island, Cape Romanzof, and Norton Sound were located within the study area. The Togiak and Norton Sound Districts were further subdivided into six sections (Kulukak, Nunavachak, Togiak, Hagemeister, Pyrite Point, and Cape Newenham) and seven subdistricts (St. Michael, Unalakleet, Cape Denbigh, Norton Bay, Elim, Golovin Bay, and Nome), respectively. These districts and subdistricts are described in ADF&G (1986). The Kuskokwim Bay area was also included in the study to collect herring data to aid managers in determining the feasibility of opening this area as a commercial fishing district.

Sampling Techniques

Pacific herring samples were collected from Togiak (all sections), Security Cove, Goodnews Bay, Nelson Island, Nunivak Island, Cape Romanzof, and Norton Sound (St. Michael, Unalakleet, Cape Denbigh, and Elim subdistricts only) commercial fishing districts and the Kuskokwim Bay area. Samples were obtained from commercial purse seine, beach seine, and gill net landings, ADF&G variable mesh test gill net (floating multifilament gill nets 31 m long and 3 m deep, consisting of four 8 m panels with stretched mesh sizes of 38, 51, 64, and 76 mm) catches, and volunteer test commercial gill-netters and purse seiners who provided their vessels, crew, and time to assist with pre-opening test samples. Data collection methods were similar to those described by Barton and Steinhoff (1980).

An attempt was made to collect at least 210 Pacific herring from each commercial, volunteer test, and ADF&G test gear type (purse seine, gill net, beach seine, and variable mesh gill net) during each weekly sampling period. Sample size was determined according to methods described by Fried et al. (1984). Sampled fish were measured to the nearest millimeter (mm), weighed to the nearest gram (g), and aged by analysis of scale annuli using a microfiche reader.

A weighted age-class composition, expressed as a percentage by weight of the commercial (purse seine and gill net) and escapement (ADF&G variable mesh test gill net) catch samples, was calculated from the sample size and mean

weight of each age class. Results were converted to biomass based on total harvest (commercial catch) and aerial survey estimates (total run).

ADF&G variable mesh test gill net (all districts) and volunteer test purse seine (Togiak District only) catch samples were used to determine mean standard length for each age class by district.

RESULTS AND DISCUSSION

A total of 14,601 Pacific herring was examined during the period 4 May to 19 June (Tables 1 - 43). No obvious trends or consistent differences in age-class composition, sex ratio, or mean age-class size were noted (nonstatistical comparisons - NSC) among sections in Togiak District or subdistricts in Norton Sound (Tables 1 - 22, 33 - 43, respectively). Data suggested (NSC) that older-aged Pacific herring (age 5+) arrived and spawned earlier in the season than younger-aged (age 4 or less) herring (Tables 22, 24, 26, 29, and 32), however, segregation was more in former years (McBride et al. 1981; Fried et al. 1982a, 1982b, and 1984). This trend was not evident in the Norton Sound District (Table 43) suggesting that young and old herring migrated inshore and spawned at about the same time (NSC).

The 1977 year class (age 9) numerically dominated commercial and test gill net samples in the Goodnews Bay, Nelson Island, Nunivak Island, and Cape Romanzof Districts for the sixth consecutive year (Figure 3). This strong year class accounted for approximately 31% (by weight) or more of the estimated total run biomass of each district, except for the Norton Sound District where age-9 herring contributed approximately 25% (Table 44, Figure 4). The 1978 year class (age 8) numerically dominated samples (all gear types) in the Togiak and Security Cove Districts representing about 37% or more of the total biomass. The 1978 year class was 15% to 34% of the total biomass in the remaining districts. The 1979 year class (age 7) represented 26% or more of the sample from Cape Romanzof and Norton Sound Districts, and less than 18% in all other districts. The 1980 year class (age 6) represented about 10% of the sample in the Norton Sound District, and approximately 6% or less in all other districts. The 1981 year class (age 5) represented about 12% or less of the sample in all districts as in 1985 (Lebida et al. 1986) indicating a lack of any significant recruitment. The 1982 year class (age 4) was also poorly represented in most districts, accounting for about 4% or less of each sample, except for nearly 10% in the Norton Sound District. The 1983 year class (age 3) represented less than 1% of all district samples.

Some differences in trends of Pacific herring year class abundance were evident between geographical areas and districts. The 1979 year class (age 7) and older herring represented at least 86% of the total run within Togiak, Security Cove, and Goodnews Bay Districts. The 1978 year class (age 8) declined in abundance progressively northward from Togiak to Norton Sound District (NSC) as evident in 1985 sampling (Lebida et al. 1986). The relative abundance of the 1983 to 1981 year classes (ages 3 - 5) increased steadily northward (NSC) from Togiak (11%) to Norton Sound District (32%) with the exception of the Cape Romanzof District which experienced a weaker 1982 year class (age 4).

Trends in mean age-class sizes generally paralleled those noted in previous years (Lebida et al. 1985a, 1986). Mean length within an age class did not appear to differ (NSC) among samples taken by different gear types within the same district (e.g., Tables 7, 11, 16, and 22). However, the mean length for each age class for each district tended to decrease (NSC) in samples collected progressively northward from Togiak to Norton Sound (Figures 5 and 6). Although not as clearly defined, the mean weight for each age class for each district followed the same trend (NSC). Overall male to female sex ratio remained fairly equal and uniform through all districts (Togiak, Goodnews Bay, Nelson Island, and Nunivak Island = 1.1, Security Cove and Kuskokwim Bay area = 0.9:1, Cape Romanzof = 1.2:1, and Norton Sound = 1.1:1). Sex ratio by gear type for all districts combined was 0.9:1 for purse seines and 1.1:1 for gill nets and beach seines.

The Pacific herring spawning biomass total estimated for the eastern Bering Sea in 1986 was 136,352 tonnes (Table 44; Lebida 1986). Biomass distribution was 63.0% in Togiak, 2.4% in Security Cove, 2.0% in Goodnews Bay, 4.9% in Nelson Island, 4.0% in Nunivak Island, 5.0% in Cape Romanzof, and 18.7% in Norton Sound Districts (Figure 7).

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Table 1. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Kulukak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured	
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	-	-	
5/13- 5/19	5	3	4	-	7	3.4	220	35.7	7	250	9.4	7
	6	4	5	-	9	4.3	234	24.4	9	256	5.2	9
	7	22	19	-	41	19.8	288	39.5	41	272	7.9	41
	8	51	55	-	106	51.2	345	41.8	106	287	8.3	106
	9+	11	33	-	44	21.3	383	44.0	44	296	8.1	44
Period total		91	116	-	207	100.0	332	59.4	207	283	14.2	207

Table 2. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Nunavachak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight		Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	3	5	-	8	3.8	202	42.1	8	235	7.7	8
	6	3	5	-	8	3.8	254	37.4	8	260	12.5	8
	7	15	25	-	40	19.2	285	47.7	40	269	11.2	40
	8	43	56	-	99	47.6	331	44.7	99	280	9.0	99
	9+	22	31	-	53	25.5	374	46.7	53	294	9.1	53
Period total		86	122	-	208	100.0	325	61.3	208	279	16.0	208

Table 3. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Togiak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	2	3	-	5	2.6	205	9.0	5	251	4.0
	6	4	4	-	8	4.2	231	30.3	8	261	8.9
	7	17	14	-	31	16.3	301	34.5	31	276	8.6
	8	47	65	-	112	58.9	342	38.1	112	286	8.4
	9+	12	22	-	34	17.9	391	53.9	34	297	9.8
Period total		82	108	-	190	100.0	336	57.2	190	285	12.9

Table 4. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Hagemeister Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	2	-	-	2	1.0	185	49.5	2	242	21.2
	6	2	2	-	4	1.9	255	18.0	4	267	5.0
	7	17	11	-	28	13.4	286	41.7	28	275	10.2
	8	51	40	-	91	43.5	332	43.5	91	285	8.7
	9+	40	44	-	84	40.2	387	43.5	84	297	9.4
Period total		112	97	-	209	100.0	345	58.9	209	288	13.1
											209

Table 5. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Pyrite Point Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	2	2	-	4	2.0	189	34.0	4	243	12.1	4
	6	1	-	-	1	.5	204	-	1	253	-	1
	7	13	18	-	31	15.3	316	49.1	31	281	9.7	31
	8	27	41	-	68	33.5	342	48.2	68	288	9.0	68
	9+	35	64	-	99	48.8	390	40.7	99	298	9.4	99
Period total		78	125	-	203	100.0	358	59.2	203	291	13.5	203

Table 6. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Cape Newenham Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	-	2	-	2	.7	209	38.2	2	239	7.1	2
	6	1	-	-	1	.4	242	-	1	252	-	1
	7	13	8	-	21	7.8	310	38.2	21	278	10.3	21
	8	51	63	-	114	42.4	350	39.9	114	291	10.0	114
	9+	58	73	-	131	48.7	386	44.6	131	299	10.5	131
Period total		123	146	-	269	100.0	363	50.5	269	293	13.1	269

Table 7. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Kulukak, Nunavachak, Togiak, Hagemeister, Pyrite Point, and Cape Newenham Sections, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	12	16	-	28	2.2	204	34.1	28	244	11.0	28
	6	15	16	-	31	2.4	240	29.7	31	260	8.9	31
	7	97	95	-	192	14.9	296	43.6	192	275	10.3	192
	8	270	320	-	590	45.9	341	42.7	590	286	9.4	590
	9+	178	267	-	445	34.6	386	44.5	445	297	9.7	445
Period total		572	714	-	1286	100.0	344	59.1	1286	287	14.6	1286

Table 8. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Kulukak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured	
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	-	-	
5/13- 5/19	5	2	-	-	2	.5	202	33.9	2	238	2.8	2
	6	6	6	-	12	2.9	249	28.4	12	262	6.3	12
	7	42	37	-	79	19.0	291	27.9	79	274	7.9	79
	8	117	93	-	210	50.5	330	38.7	210	286	7.7	210
	9+	63	50	-	113	27.2	364	42.4	113	295	9.4	113
Period total		230	186	-	416	100.0	329	47.7	416	285	12.1	416

Table 9. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Nunavachak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured	
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	-	-	
5/13- 5/19	5	-	-	-	-	-	-	-	-	-	-	
	6	3	2	-	5	1.5	251	14.6	5	266	6.4	5
	7	41	16	-	57	17.1	293	39.8	57	279	10.0	57
	8	91	66	-	157	47.0	339	39.8	157	291	9.1	157
	9+	54	61	-	115	34.4	374	49.0	115	301	9.6	115
Period total		189	145	-	334	100.0	342	52.1	334	292	12.6	334

Table 10. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Togiak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	-	-	-	-	-	-	-	-	-	-	-
	6	7	7	-	14	3.6	272	26.1	14	264	9.8	14
	7	52	38	-	90	23.3	292	31.1	90	274	6.9	90
	8	112	81	-	193	50.0	328	35.8	193	284	7.5	193
	9+	51	38	-	89	23.1	366	42.4	89	294	8.4	89
Period total		222	164	-	386	100.0	326	45.2	386	283	11.0	386

Table 11. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Kulukak, Nunavachak, and Togiak Sections, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	2	-	-	2 .2	202	33.9	2	238	2.8	2
	6	16	15	-	31 2.7	260	27.4	31	263	7.9	31
	7	135	91	-	226 19.9	292	32.4	226	275	8.4	226
	8	320	240	-	560 49.3	332	38.2	560	287	8.6	560
	9+	168	149	-	317 27.9	368	45.0	317	297	9.8	317
Period total		641	495	-	1136 100.0	332	48.6	1136	287	12.4	1136

Table 12. Age, sex, and size composition of Pacific herring captured by test purse seines in Kulukak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured	
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	-	-	
5/13- 5/19	5	5	11	-	16	7.8	207	41.0	16	247	10.2	16
	6	8	7	-	15	7.4	230	29.0	15	256	8.2	15
	7	25	25	-	50	24.5	278	38.5	50	273	7.0	50
	8	34	41	-	75	36.8	328	44.5	75	286	6.8	75
	9+	20	28	-	48	23.5	377	49.2	48	297	6.6	48
Period total		92	112	-	204	100.0	311	67.4	204	280	16.7	204

Table 13. Age, sex, and size composition of Pacific herring captured by test purse seines in Nunavachak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/ 6- 5/12	5	-	2	-	2	3.8	218	45.3	2	244	17.0	2
	6	-	3	-	3	5.7	300	82.4	3	262	13.9	3
	7	11	7	-	18	34.0	312	42.6	18	271	9.3	18
	8	11	8	-	19	35.8	356	42.5	19	284	6.9	19
	9+	4	7	-	11	20.8	386	73.7	11	292	7.5	11
	Period total	26	27	-	53	100.0	339	63.6	53	279	14.1	53
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	5	4	-	9	5.1	199	22.5	9	245	9.6	9
	6	11	4	-	15	8.5	242	46.7	15	259	8.0	15
	7	19	25	-	44	25.0	299	42.6	44	274	8.6	44
	8	37	34	-	71	40.3	345	46.1	71	286	9.9	71
	9+	15	22	-	37	21.0	389	38.3	37	299	8.8	37
	Period total	87	89	-	176	100.0	326	66.4	176	281	16.8	176
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	8	5	-	13	6.4	144	19.5	13	225	7.8	13
5/20- 5/26	5	47	30	-	77	37.7	181	20.7	77	241	7.5	77
	6	13	11	-	24	11.8	227	35.9	24	257	12.2	24
	7	22	16	-	38	18.6	271	32.8	38	272	8.2	38
	8	23	13	-	36	17.6	331	35.0	36	288	6.4	36
	9+	9	7	-	16	7.8	358	39.2	16	300	9.2	16
	Period total	122	82	-	204	100.0	241	74.3	204	261	24.0	204
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	8	5	-	13	3.0	144	19.5	13	225	7.8	13
All periods	5	52	36	-	88	20.3	184	22.4	88	242	7.9	88
	6	24	18	-	42	9.7	237	46.5	42	258	10.8	42
	7	52	48	-	100	23.1	291	42.0	100	273	8.5	100
	8	71	55	-	126	29.1	343	43.2	126	286	8.7	126
	9+	28	36	-	64	14.8	381	47.3	64	298	9.0	64
	Total	235	198	-	433	100.0	288	82.6	433	271	22.6	433

Table 14. Age, sex, and size composition of Pacific herring captured by test purse seines in Togiak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	1	4	-	5	2.0	188	19.2	5	249	10.4	5
	6	3	5	-	8	3.2	238	34.5	8	260	8.7	8
	7	23	25	-	48	19.2	293	49.3	48	276	9.1	48
	8	60	59	-	119	47.6	320	46.3	119	288	7.0	119
	9+	20	50	-	70	28.0	370	55.0	70	299	9.2	70
Period total		107	143	-	250	100.0	323	61.3	250	287	13.4	250
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	12	9	-	21	17.6	190	19.5	21	243	9.2	21
	6	9	3	-	12	10.1	225	27.4	12	258	9.0	12
	7	12	11	-	23	19.3	284	31.8	23	275	9.6	23
	8	15	27	-	42	35.3	315	44.9	42	286	9.4	42
	9+	11	10	-	21	17.6	363	68.1	21	296	10.0	21
Period total		59	60	-	119	100.0	286	72.0	119	275	20.6	119
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
All periods	5	13	13	-	26	7.0	190	19.1	26	244	9.6	26
	6	12	8	-	20	5.4	230	30.2	20	259	8.8	20
	7	35	36	-	71	19.2	290	44.4	71	276	9.2	71
	8	75	86	-	161	43.6	318	45.9	161	287	7.7	161
	9+	31	60	-	91	24.7	369	58.0	91	298	9.4	91
Total		166	203	-	369	100.0	311	67.1	369	283	17.0	369

Table 15. Age, sex, and size composition of Pacific herring captured by test purse seines in Hagemeister Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	-	1	-	1	.5	230	-	1	252	-	1
	6	2	-	-	2	1.0	267	72.1	2	249	3.5	2
	7	13	17	-	30	14.3	305	33.3	30	275	8.0	30
	8	45	46	-	91	43.3	353	42.9	91	287	9.4	91
	9+	35	51	-	86	41.0	400	55.1	86	300	13.2	86
Period total		95	115	-	210	100.0	364	58.9	210	290	14.8	210
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	4	-	-	-	-	-	-	-	-	-	-	-
	5	28	30	-	58	17.7	199	19.7	58	243	8.5	58
	6	11	2	-	13	4.0	246	41.6	13	257	9.6	13
	7	37	28	-	65	19.9	282	35.4	65	270	8.9	65
	8	51	57	-	108	33.0	326	42.5	108	286	7.4	108
	9+	35	48	-	83	25.4	360	49.4	83	296	8.7	83
Period total		162	165	-	327	100.0	300	68.6	327	277	20.5	327
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
All periods	4	-	-	-	-	-	-	-	-	-	-	-
	5	28	31	-	59	11.0	200	19.9	59	243	8.5	59
	6	13	2	-	15	2.8	248	43.7	15	256	9.4	15
	7	50	45	-	95	17.7	289	36.1	95	271	8.8	95
	8	96	103	-	199	37.1	338	44.6	199	286	8.4	199
	9+	70	99	-	169	31.5	380	55.9	169	298	11.3	169
Total		257	280	-	537	100.0	325	71.9	537	282	19.5	537

Table 16. Age, sex, and size composition of Pacific herring captured by test purse seines in Kulukak, Nunavachak, Togiak, and Hagemeister Sections, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/ 6- 5/12	5	-	2	-	2	3.8	218	45.3	2	244	17.0	2
	6	-	3	-	3	5.7	300	82.4	3	262	13.9	3
	7	11	7	-	18	34.0	312	42.6	18	271	9.3	18
	8	11	8	-	19	35.8	356	42.5	19	284	6.9	19
	9+	4	7	-	11	20.8	386	73.7	11	292	7.5	11
Period total		26	27	-	53	100.0	339	63.6	53	279	14.1	53
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	11	20	-	31	3.7	203	33.2	31	247	9.7	31
	6	24	16	-	40	4.8	238	38.8	40	258	8.3	40
	7	80	92	-	172	20.5	292	42.8	172	274	8.2	172
	8	176	180	-	356	42.4	335	46.9	356	287	8.3	356
	9+	90	151	-	241	28.7	385	52.9	241	299	10.3	241
Period total		381	459	-	840	100.0	331	66.2	840	285	15.8	840
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	8	5	-	13	2.0	144	19.5	13	225	7.8	13
5/20- 5/26	5	87	69	-	156	24.0	189	21.7	156	242	8.1	156
	6	33	16	-	49	7.5	231	36.0	49	257	10.6	49
	7	71	55	-	126	19.4	279	34.1	126	271	8.9	126
	8	89	97	-	186	28.6	324	41.9	186	286	7.8	186
	9+	55	65	-	120	18.5	360	51.6	120	297	9.0	120
Period total		343	307	-	650	100.0	279	75.6	650	271	22.8	650
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	8	5	-	13	.8	144	19.5	13	225	7.8	13
All periods	5	98	91	-	189	12.2	192	24.6	189	243	8.6	189
	6	57	35	-	92	6.0	236	40.3	92	258	9.7	92
	7	162	154	-	316	20.5	288	40.4	316	273	8.7	316
	8	276	285	-	561	36.4	332	45.6	561	287	8.1	561
	9+	149	223	-	372	24.1	377	54.3	372	298	9.9	372
Total		750	793	-	1543	100.0	309	74.8	1543	279	20.1	1543

Table 17. Age, sex, and size composition of Pacific herring captured by test commercial gill nets in Kulukak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev. Weighed	Number	Mean (mm)	Std. Dev.	Measured	
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	-	-	
5/ 6- 5/12	5	-	-	-	-	-	-	-	-	-	-	
	6	-	-	-	-	-	-	-	-	-	-	
	7	-	4	-	4	5.3	325	31.9	4	285	5.3	4
	8	15	19	-	34	45.3	343	30.1	34	292	6.8	34
	9+	10	27	-	37	49.3	388	46.4	37	305	10.3	37
Period total		25	50	-	75	100.0	364	45.4	.75	298	11.1	75

Table 18. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Kulukak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/6- 5/12	5	1	1	-	2	1.5	257	58.7	2	242	4.9	2
	6	1	1	-	2	1.5	236	25.5	2	258	10.6	2
	7	8	13	-	21	15.8	307	58.4	21	276	9.3	21
	8	25	35	-	60	45.1	351	42.9	60	286	8.2	60
	9+	23	25	-	48	36.1	416	53.6	48	303	8.6	48
	Period total	58	75	-	133	100.0	364	66.3	133	290	14.8	133
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	2	4	-	6	2.2	184	27.0	6	243	8.4	6
	6	8	5	-	13	4.8	234	21.2	13	261	7.2	13
	7	43	21	-	64	23.5	273	36.3	64	273	7.2	64
	8	51	65	-	116	42.6	337	33.2	116	286	7.4	116
	9+	25	48	-	73	26.8	373	43.7	73	298	13.9	73
	Period total	129	143	-	272	100.0	323	59.0	272	284	15.3	272
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	2	-	3	1.1	109	21.5	3	205	13.7	3
	4	4	5	-	9	3.3	141	27.3	9	224	10.6	9
5/20- 5/26	5	50	40	-	90	33.1	175	19.8	90	240	7.8	90
	6	19	13	-	32	11.8	218	36.6	32	256	9.2	32
	7	27	23	-	50	18.4	276	38.1	50	274	7.6	50
	8	40	25	-	65	23.9	314	39.5	65	286	7.5	65
	9+	12	11	-	23	8.5	361	34.4	23	297	6.8	23
	Period total	153	119	-	272	100.0	246	76.1	272	263	23.9	272
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	2	-	3	.4	109	21.5	3	205	13.7	3
	4	4	5	-	9	1.3	141	27.3	9	224	10.6	9
All periods	5	53	45	-	98	14.5	177	23.9	98	240	7.8	98
	6	28	19	-	47	6.9	223	33.1	47	258	8.8	47
	7	78	57	-	135	19.9	280	42.5	135	274	7.7	135
	8	116	125	-	241	35.6	334	39.7	241	286	7.6	241
	9+	60	84	-	144	21.3	386	50.7	144	299	11.6	144
	Total	340	337	-	677	100.0	300	82.4	677	277	22.3	677

Table 19. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Nunavachak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev. (gm)	Number Weighed	Mean (mm)	Std. Dev. (mm)	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
5/ 6- 5/12	5	1	-	-	1	1.5	188	-	1	237	-
	6	-	-	-	-	-	-	-	-	-	-
	7	7	8	-	15	22.4	348	46.2	15	280	9.4
	8	19	14	-	33	49.3	366	47.2	33	286	8.9
	9+	4	14	-	18	26.9	420	37.5	18	296	8.5
	Period total	31	36	-	67	100.0	374	56.3	67	286	12.1
	67										
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	1	-	-	1	1.6	168	-	1	252	-
	6	2	-	-	2	3.2	212	5.7	2	252	2.8
	7	10	5	-	15	24.2	277	31.2	15	276	7.0
	8	20	14	-	34	54.8	335	38.8	34	289	6.8
	9+	3	7	-	10	16.1	389	39.2	10	301	9.1
	Period total	36	26	-	62	100.0	323	58.1	62	286	13.0
	62										
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	2	1	-	3	1.9	144	32.2	3	229	13.0
5/20- 5/26	5	23	9	-	32	20.1	174	20.6	32	245	7.3
	6	7	12	-	19	11.9	212	22.0	19	262	6.5
	7	17	14	-	31	19.5	240	22.8	31	270	8.4
	8	23	26	-	49	30.8	296	33.3	49	287	6.9
	9+	12	13	-	25	15.7	320	34.4	25	299	6.6
	Period total	84	75	-	159	100.0	251	61.3	159	273	20.7
	159										
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	1	-	1	.9	120	-	1	217	-
	4	2	1	-	3	2.8	136	5.3	3	236	3.2
5/27- 6/ 2	5	9	10	-	19	17.9	168	21.1	19	250	9.2
	6	-	2	-	2	1.9	201	38.2	2	267	11.3
	7	4	3	-	7	6.6	261	18.4	7	283	7.2
	8	17	19	-	36	34.0	287	28.2	36	296	7.3
	9+	15	23	-	38	35.8	324	41.8	38	307	7.9
	Period total	47	59	-	106	100.0	270	69.6	106	288	24.7
	106										

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Table 19. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Nunavachak Section, Togiak District, 1986 (continued).

Sample Period	Age (years)	Sex			Total	Percent of Total	Weight		Std. Length		
		Male	Female	Unknown			Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	1	-	1	.3	120	-	1	217	-
	4	4	2	-	6	1.5	140	21.1	6	233	9.2
All periods	5	34	19	-	53	13.5	172	20.6	53	247	8.2
	6	9	14	-	23	5.8	211	21.8	23	261	7.2
	7	38	30	-	68	17.3	274	51.9	68	275	9.3
	8	79	73	-	152	38.6	318	48.1	152	289	8.3
	9+	34	57	-	91	23.1	349	55.9	91	302	8.9
Total		198	196	-	394	100.0	288	77.1	394	281	20.8
											394

Table 20. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Togiak Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	2	2	-	4	5.3	137	12.7	4	228	4.0	4
5/20- 5/26	5	6	7	-	13	17.3	184	31.1	13	247	10.9	13
	6	-	1	-	1	1.3	206	-	1	261	-	1
	7	3	3	-	6	8.0	231	29.0	6	279	11.3	6
	8	9	12	-	21	28.0	280	35.3	21	296	6.7	21
	9+	9	21	-	30	40.0	332	31.9	30	311	8.0	30
Period total		29	46	-	75	100.0	272	70.6	75	288	28.4	75

Table 21. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Hagemeister Section, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
4/29- 5/5	5	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-
	7	1	-	-	1	8.3	312	-	1	289	-	1
	8	2	6	-	8	66.7	343	32.0	8	290	5.0	8
	9+	-	3	-	3	25.0	418	38.0	3	311	13.2	3
	Period total	3	9	-	12	100.0	359	47.5	12	295	11.9	12
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/6- 5/12	5	2	6	-	8	4.0	184	26.7	8	242	10.9	8
	6	5	5	-	10	5.1	237	29.6	10	259	8.1	10
	7	17	22	-	39	19.7	289	38.7	39	273	8.5	39
	8	26	33	-	59	29.8	337	36.2	59	285	7.8	59
	9+	28	54	-	82	41.4	395	40.6	82	298	8.3	82
	Period total	78	120	-	198	100.0	340	68.6	198	285	16.5	198
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	4	2	-	6	7.5	193	30.8	6	244	10.7	6
	6	4	1	-	5	6.3	221	29.0	5	262	11.9	5
	7	9	11	-	20	25.0	258	37.2	20	274	8.1	20
	8	13	15	-	28	35.0	310	43.6	28	287	7.0	28
	9+	6	15	-	21	26.3	373	57.0	21	301	9.2	21
	Period total	36	44	-	80	100.0	299	71.2	80	282	18.0	80
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	2	-	2	.9	94	8.5	2	197	7.1	2
	4	5	7	-	12	5.4	130	18.8	12	216	7.2	12
5/20- 5/26	5	22	19	-	41	18.5	188	22.7	41	239	9.1	41
	6	8	10	-	18	8.1	228	27.0	18	254	9.3	18
	7	35	15	-	50	22.5	275	36.1	50	268	7.4	50
	8	42	20	-	62	27.9	325	34.9	62	282	7.4	62
	9+	13	24	-	37	16.7	381	44.5	37	296	8.9	37
	Period total	125	97	-	222	100.0	277	81.9	222	267	24.9	222

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Table 21. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Hagemeister Section, Togiak District, 1986 (continued).

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male	Female	Unknown		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	2	-	2	.4	94	8.5	2	197	7.1
	4	5	7	-	12	2.3	130	18.8	12	216	7.2
All periods	5	28	27	-	55	10.7	188	23.8	55	240	9.5
	6	17	16	-	33	6.4	230	27.7	33	257	9.5
	7	62	48	-	110	21.5	277	38.5	110	271	8.4
	8	83	74	-	157	30.7	327	38.0	157	284	7.7
	9+	47	96	-	143	27.9	388	44.9	143	298	8.9
Total		242	270	-	512	100.0	307	80.2	512	277	22.6
											512

Table 22. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Kulukak, Nunavachak, Togiak, and Hagemeister Sections, Togiak District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
4/29- 5/5	5	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-
	7	1	-	-	1	8.3	312	-	1	289	-
	8	2	6	-	8	66.7	343	32.0	8	290	5.0
	9+	-	3	-	3	25.0	418	38.0	3	311	13.2
	Period total	3	9	-	12	100.0	359	47.5	12	295	11.9
	12										
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
5/6- 5/12	5	4	7	-	11	2.8	198	41.1	11	242	9.4
	6	6	6	-	12	3.0	237	27.8	12	259	8.0
	7	32	43	-	75	18.8	306	51.0	75	275	9.1
	8	70	82	-	152	38.2	349	42.6	152	286	8.2
	9+	55	93	-	148	37.2	405	46.0	148	299	8.8
	Period total	167	231	-	398	100.0	354	67.2	398	287	15.4
	398										
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	7	6	-	13	3.1	187	27.4	13	244	9.1
	6	14	6	-	20	4.8	229	23.0	20	260	8.4
	7	62	37	-	99	23.9	271	36.1	99	274	7.4
	8	84	94	-	178	43.0	332	37.2	178	287	7.3
	9+	34	70	-	104	25.1	375	46.1	104	299	12.7
	Period total	201	213	-	414	100.0	319	62.0	414	284	15.6
	414										
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	1	4	-	5	.7	103	17.7	5	202	11.1
	4	13	15	-	28	3.8	136	22.2	28	222	9.8
5/20- 5/26	5	101	75	-	176	24.2	179	22.2	176	241	8.7
	6	34	36	-	70	9.6	219	30.7	70	257	8.9
	7	82	55	-	137	18.8	266	37.6	137	271	8.3
	8	114	83	-	197	27.1	309	38.9	197	286	8.2
	9+	46	69	-	115	15.8	351	44.4	115	301	9.8
	Period total	391	337	-	728	100.0	259	75.6	728	269	25.2
	728										

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Table 22. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Kulukak, Nunavachak, Togiak, and Hagemeister Sections, Togiak District, 1986 (continued).

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male	Female	Unknown	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	1	-	1	.9	120	-	1	217	-	1
	4	2	1	-	3	2.8	136	5.3	3	236	3.2	3
5/27- 6/ 2	5	9	10	-	19	17.9	168	21.1	19	250	9.2	19
	6	-	2	-	2	1.9	201	38.2	2	267	11.3	2
	7	4	3	-	7	6.6	261	18.4	7	283	7.2	7
	8	17	19	-	36	34.0	287	28.2	36	296	7.3	36
	9+	15	23	-	38	35.8	324	41.8	38	307	7.9	38
Period total		47	59	-	106	100.0	270	69.6	106	288	24.7	106
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	5	-	6	.4	106	17.3	6	204	11.8	6
	4	15	16	-	31	1.9	136	21.1	31	223	10.2	31
All periods	5	121	98	-	219	13.2	179	24.2	219	242	9.0	219
	6	54	50	-	104	6.3	222	29.6	104	258	8.8	104
	7	181	138	-	319	19.2	277	43.5	319	273	8.5	319
	8	287	284	-	571	34.4	326	42.9	571	287	8.2	571
	9+	150	258	-	408	24.6	375	52.5	408	300	10.4	408
Total		809	849	-	1658	100.0	298	80.4	1658	278	22.5	1658

Table 23. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Security Cove District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	1	5	-	6	1.3	237	48.6	6	249	11.9	6
	6	6	8	-	14	2.9	264	44.1	14	273	12.7	14
	7	56	62	-	118	24.6	293	40.3	118	279	11.6	118
	8	99	112	-	211	44.0	322	37.3	211	288	10.2	211
	9+	62	69	-	131	27.3	353	45.7	131	297	10.0	131
Period total		224	256	-	480	100.0	321	48.1	480	287	13.3	480

Table 24. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Security Cove District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	20	12	-	32	11.4	186	20.3	32	244	7.6
	6	5	6	-	11	3.9	224	36.3	11	258	9.9
	7	25	24	-	49	17.4	294	42.0	49	277	10.4
	8	41	52	-	93	33.1	328	47.0	93	286	11.0
	9+	43	53	-	96	34.2	354	46.4	96	291	10.1
Period total		134	147	-	281	100.0	311	68.7	281	280	18.0
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	4	1	-	5	1.8	130	10.3	5	218	5.8
5/20- 5/26	5	34	35	-	69	25.5	182	34.7	69	243	11.4
	6	11	11	-	22	8.1	231	33.4	22	260	10.5
	7	19	23	-	42	15.5	277	46.2	42	275	11.3
	8	34	52	-	86	31.7	312	42.2	86	286	9.9
	9+	20	27	-	47	17.3	333	41.0	47	294	7.8
Period total		122	149	-	271	100.0	267	72.8	271	271	23.1
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	4	1	-	5	.9	130	10.3	5	218	5.8
All periods	5	54	47	-	101	18.3	183	30.8	101	243	10.4
	6	16	17	-	33	6.0	229	34.0	33	260	10.2
	7	44	47	-	91	16.5	286	44.6	91	276	10.8
	8	75	104	-	179	32.4	320	45.3	179	286	10.5
	9+	63	80	-	143	25.9	347	45.7	143	292	9.5
Total		256	296	-	552	100.0	289	74.0	552	276	21.1

Table 25. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Goodnews Bay District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	2	2	-	4	.8	238	48.9	4	263	15.5	4
	6	3	1	-	4	.8	310	42.0	4	280	11.1	4
	7	41	54	-	95	18.1	326	50.1	95	286	13.6	95
	8	107	105	-	212	40.4	348	40.9	212	292	12.1	212
	9+	102	108	-	210	40.0	376	46.6	210	298	11.7	210
Period total		255	270	-	525	100.0	354	49.8	525	293	13.3	525

Table 26. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Goodnews Bay District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured	
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	-	-	
5/ 6- 5/12	5	6	5	-	11	6.2	205	27.3	11	251	13.0	11
	6	5	2	-	7	4.0	260	52.4	7	270	16.0	7
	7	14	22	-	36	20.3	290	44.4	36	277	12.4	36
	8	19	38	-	57	32.2	345	52.7	57	292	11.9	57
	9+	35	31	-	66	37.3	373	40.6	66	297	9.9	66
Period total		79	98	-	177	100.0	332	65.5	177	287	16.8	177
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	-	-	
5/13- 5/19	5	3	2	-	5	2.6	177	24.6	5	245	10.1	5
	6	6	3	-	9	4.6	275	77.1	9	270	17.7	9
	7	17	12	-	29	14.9	314	49.6	29	277	12.9	29
	8	44	37	-	81	41.5	348	44.0	81	288	9.0	81
	9+	40	31	-	71	36.4	378	56.5	71	295	12.6	71
Period total		110	85	-	195	100.0	346	63.8	195	287	15.1	195
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	1	2	-	3	1.5	143	11.5	3	223	2.1	3
5/20- 5/26	5	21	21	-	42	21.0	182	32.6	42	240	12.6	42
	6	16	6	-	22	11.0	229	30.7	22	256	10.3	22
	7	19	18	-	37	18.5	276	45.1	37	271	11.2	37
	8	28	20	-	48	24.0	318	47.8	48	284	10.5	48
	9+	19	29	-	48	24.0	370	49.1	48	295	11.1	48
Period total		104	96	-	200	100.0	282	81.8	200	271	23.9	200
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	8	6	-	14	10.8	145	14.3	14	223	5.9	14
5/27- 6/ 2	5	23	34	-	57	43.8	182	23.7	57	238	9.0	57
	6	5	2	-	7	5.4	229	38.0	7	254	8.3	7
	7	11	9	-	20	15.4	289	53.9	20	270	13.4	20
	8	9	14	-	23	17.7	309	44.2	23	279	10.0	23
	9+	4	5	-	9	6.9	321	60.8	9	285	15.5	9
Period total		60	70	-	130	100.0	229	73.2	130	252	23.1	130

- continued -

Table 26. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Goodnews Bay District, 1986 (continued).

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male	Female	Unknown		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured	
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
All periods	4	9	8	-	17	2.4	145	13.5	17	223	5.4	17
	5	53	62	-	115	16.4	184	28.2	115	240	11.5	115
	6	32	13	-	45	6.4	243	49.9	45	261	14.1	45
	7	61	61	-	122	17.4	291	48.9	122	274	12.7	122
	8	100	109	-	209	29.8	336	49.5	209	287	11.0	209
	9+	98	96	-	194	27.6	372	50.9	194	295	11.7	194
	Total	353	349	-	702	100.0	303	83.4	702	276	23.9	702

Table 27. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in the Kuskokwim Bay area, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	6	11	-	17	14.3	131	13.0	17	219	7.3	17
5/27- 6/ 2	5	17	22	-	39	32.8	178	24.1	39	240	10.5	39
	6	7	5	-	12	10.1	226	31.7	12	258	9.2	12
	7	5	6	-	11	9.2	274	44.9	11	270	9.2	11
	8	14	12	-	26	21.8	310	27.5	26	282	9.1	26
	9+	6	8	-	14	11.8	337	32.9	14	289	6.4	14
Period total		55	64	-	119	100.0	233	77.5	119	256	25.6	119

Table 28. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Nelson Island District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	-	1	-	1	.2	184	-	1	244	-	1
	6	5	3	-	8	1.2	266	44.3	8	267	10.1	8
	7	44	63	-	107	16.3	285	35.8	107	275	11.1	107
	8	141	127	-	268	40.9	311	42.5	268	283	12.6	268
	9+	137	134	-	271	41.4	342	48.9	271	292	11.4	271
Period total		327	328	-	655	100.0	319	49.5	655	285	13.4	655
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/27- 6/2	5	-	2	-	2	.5	219	12.7	2	252	10.6	2
	6	4	5	-	9	2.4	241	27.6	9	267	7.9	9
	7	35	54	-	89	24.1	262	28.6	89	271	9.9	89
	8	83	56	-	139	37.7	290	35.2	139	280	8.6	139
	9+	62	68	-	130	35.2	315	44.0	130	286	13.9	130
Period total		184	185	-	369	100.0	291	43.1	369	280	12.7	369
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
All periods	5	-	3	-	3	.3	207	22.1	3	249	8.7	3
	6	9	8	-	17	1.7	253	37.4	17	267	8.7	17
	7	79	117	-	196	19.1	275	34.6	196	274	10.7	196
	8	224	183	-	407	39.7	304	41.3	407	282	11.5	407
	9+	199	202	-	401	39.2	333	48.9	401	290	12.5	401
Total		511	513	-	1024	100.0	309	49.2	1024	283	13.4	1024

Table 29. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Nelson Island District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.7	120	-	1	218	-
	4	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	2	-	-	2	1.4	180	19.8	2	241	12.7
	6	3	5	-	8	5.5	223	32.4	8	257	11.5
	7	17	14	-	31	21.4	266	44.3	31	272	9.6
	8	33	23	-	56	38.6	307	34.4	56	284	8.9
	9+	27	20	-	47	32.4	338	44.2	47	291	9.5
	Period total	83	62	-	145	100.0	301	55.0	145	281	14.8
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	7	11	-	18	9.6	129	18.6	18	217	8.0
5/27- 6/ 2	5	16	22	-	38	20.3	166	22.3	38	236	8.4
	6	9	10	-	19	10.2	198	26.9	19	250	7.1
	7	17	13	-	30	16.0	254	38.2	30	267	9.4
	8	20	15	-	35	18.7	283	44.0	35	272	18.4
	9+	24	23	-	47	25.1	335	50.9	47	289	8.6
	Period total	93	94	-	187	100.0	244	80.8	187	261	26.0
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	20	15	-	35	15.1	106	24.2	35	214	16.4
6/ 3- 6/ 9	5	25	26	-	51	22.0	157	24.9	51	234	8.6
	6	10	6	-	16	6.9	193	39.9	16	250	16.9
	7	17	9	-	26	11.2	236	42.4	26	267	11.9
	8	24	13	-	37	15.9	270	49.0	37	279	11.8
	9+	36	31	-	67	28.9	310	55.3	67	287	11.9
	Period total	132	100	-	232	100.0	223	86.2	232	258	30.2
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	1	2	-	3	1.4	63	17.9	3	178	14.8
	4	14	9	-	23	11.0	113	14.2	23	213	8.4
6/10- 6/16	5	20	20	-	40	19.1	154	28.0	40	232	12.8
	6	12	5	-	17	8.1	197	30.2	17	251	13.7
	7	13	14	-	27	12.9	253	40.5	27	270	13.5
	8	23	19	-	42	20.1	293	45.7	42	282	13.3
	9+	18	39	-	57	27.3	321	55.8	57	291	13.4
	Period total	101	108	-	209	100.0	238	88.7	209	262	32.0

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Table 29. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Nelson Island District, 1986 (continued).

Sample Period	Age (years)	Sex			Percent of Total		Weight		Std. Length			
		Male	Female	Unknown	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	2	2	-	4	.5	78	31.9	4	188	23.4	4
	4	41	35	-	76	9.8	114	22.1	76	214	12.6	76
All periods	5	63	68	-	131	16.9	159	25.5	131	234	10.0	131
	6	34	26	-	60	7.8	200	33.0	60	251	12.7	60
	7	64	50	-	114	14.7	253	42.2	114	269	11.1	114
	8	100	70	-	170	22.0	291	44.7	170	280	13.7	170
	9+	105	113	-	218	28.2	324	53.2	218	289	11.2	218
	Total	409	364	-	773	100.0	247	85.0	773	264	28.7	773

Table 30. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Nuvivak Island District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	-	-	-	-	-	-	-	-	-	-
	6	-	1	-	1	.2	250	-	1	266	-
	7	31	33	-	64	13.0	286	29.8	64	274	8.0
	8	94	77	-	171	34.6	319	32.5	171	286	8.3
	9+	125	133	-	258	52.2	333	36.0	258	292	8.9
	Period total	250	244	-	494	100.0	322	37.5	494	288	10.4
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
5/27- 6/ 2	5	-	-	-	-	-	-	-	-	-	-
	6	-	1	-	1	1.2	268	-	1	265	-
	7	13	13	-	26	31.3	280	20.7	26	274	7.5
	8	18	10	-	28	33.7	301	23.7	28	284	6.6
	9+	14	14	-	28	33.7	330	43.8	28	292	6.7
	Period total	45	38	-	83	100.0	304	37.2	83	283	10.4
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-
All periods	5	-	-	-	-	-	-	-	-	-	-
	6	-	2	-	2	.3	259	12.7	2	266	.7
	7	44	46	-	90	15.6	284	27.5	90	274	7.8
	8	112	87	-	199	34.5	316	32.0	199	286	8.1
	9+	139	147	-	286	49.6	333	36.8	286	292	8.7
	Total	295	282	-	577	100.0	319	38.0	577	287	10.5

Table 31. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Cape Romanzof District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight		Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Measured Number
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/27- 6/ 2	5	8	11	-	19	3.3	144	35.4	19	240	11.1	19
	6	9	11	-	20	3.5	194	43.6	20	258	9.1	20
	7	89	82	-	171	30.0	233	42.2	171	266	8.6	171
	8	98	71	-	169	29.6	255	46.3	169	273	10.2	169
	9+	111	80	-	191	33.5	285	48.3	191	279	10.5	191
Period total		315	255	-	570	100.0	253	55.1	570	271	12.8	570

Table 32. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Cape Romanzof District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured	
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	-	-	
5/20- 5/26	5	4	2	-	6	12.2	158	23.6	6	230	8.0	6
	6	3	1	-	4	8.2	236	32.8	4	251	7.1	4
	7	2	6	-	8	16.3	228	69.6	8	255	17.1	8
	8	8	6	-	14	28.6	264	44.7	14	275	27.9	14
	9+	7	10	-	17	34.7	311	43.1	17	276	8.8	17
	Period total	24	25	-	49	100.0	259	66.5	49	264	23.4	49
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	4	2	-	6	2.7	100	5.7	6	217	4.0	6
5/27- 6/ 2	5	17	11	-	28	12.4	152	28.7	28	236	12.9	28
	6	20	6	-	26	11.5	204	31.2	26	253	10.2	26
	7	33	29	-	62	27.4	234	38.3	62	263	9.8	62
	8	33	18	-	51	22.6	248	34.6	51	270	9.1	51
	9+	23	30	-	53	23.5	285	52.1	53	278	10.2	53
	Period total	130	96	-	226	100.0	232	59.9	226	262	18.1	226
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	9	4	-	13	6.4	138	34.5	13	213	8.8	13
6/ 3- 6/ 9	5	24	25	-	49	24.0	165	24.3	49	234	11.5	49
	6	2	3	-	5	2.5	194	29.7	5	249	16.1	5
	7	24	31	-	55	27.0	249	37.4	55	263	9.8	55
	8	25	14	-	39	19.1	261	45.2	39	271	9.6	39
	9+	25	18	-	43	21.1	293	52.8	43	281	19.4	43
	Period total	109	95	-	204	100.0	232	65.4	204	258	24.2	204
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	3	3	-	6	18.8	83	12.5	6	208	5.2	6
6/10- 6/16	5	4	6	-	10	31.3	133	31.4	10	234	12.0	10
	6	1	-	-	1	3.1	124	-	1	235	-	1
	7	2	3	-	5	15.6	209	30.0	5	260	7.1	5
	8	-	2	-	2	6.3	229	49.5	2	264	5.7	2
	9+	5	3	-	8	25.0	272	37.2	8	279	4.5	8
	Period total	15	17	-	32	100.0	176	76.7	32	246	26.9	32

- continued -

Table 32. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Cape Romanzof District, 1986 (continued).

Sample Period	Age (years)	Sex			of Total	Percent			Weight			Std. Length		
		Male	Female	Unknown		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured			
	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	16	9	-	25	4.9	116	34.9	25	213	7.6	25		
All periods	5	49	44	-	93	18.2	157	28.0	93	234	11.7	93		
	6	26	10	-	36	7.0	204	34.6	36	252	10.9	36		
	7	61	69	-	130	25.4	239	40.8	130	262	10.4	130		
	8	66	40	-	106	20.7	254	40.6	106	271	13.1	106		
	9+	60	61	-	121	23.7	291	50.8	121	279	13.9	121		
	Total	278	233	-	511	100.0	231	65.7	511	260	22.2	511		

Table 33. Age, sex, and size composition of Pacific herring captured by commercial gill nets in St. Michael Subdistrict, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured	
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	2	1	-	3	.6	149	16.0	3	220	12.7	3
6/ 3- 6/ 9	5	23	11	-	34	6.7	189	26.1	34	237	7.7	34
	6	19	20	-	39	7.6	234	28.1	39	252	8.3	39
	7	121	113	-	234	45.8	263	29.3	234	262	9.1	234
	8	45	55	-	100	19.6	293	28.9	100	274	8.8	100
	9+	51	50	-	101	19.8	311	32.9	101	279	9.5	101
Period total		261	250	-	511	100.0	270	44.1	511	265	14.7	511

Table 34. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Cape Denbigh Subdistrict, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
6/ 3- 6/ 9	5	5	2	-	7	1.7	196	21.0	5	243	9.4	7
	6	14	15	-	29	7.0	228	19.7	16	254	6.8	29
	7	89	95	-	184	44.2	258	26.6	113	263	6.7	184
	8	28	38	-	66	15.9	282	30.3	53	270	8.6	66
	9+	61	69	-	130	31.3	292	30.1	93	272	8.8	130
Period total		197	219	-	416	100.0	271	35.0	280	266	9.8	416

Table 35. Age, sex, and size composition of Pacific herring captured by commercial gill nets in St. Michael and Cape Denbigh Subdistricts, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev. (gm)	Number Weighed	Mean (mm)	Std. Dev. (mm)	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	2	1	-	3	.3	149	16.0	3	220	12.7
6/ 3- 6/ 9	5	28	13	-	41	4.4	189	25.4	39	238	8.3
	6	33	35	-	68	7.3	232	26.0	55	253	7.7
	7	210	208	-	418	45.1	261	28.5	347	262	8.1
	8	73	93	-	166	17.9	289	29.7	153	272	9.0
	9+	112	119	-	231	24.9	302	32.9	194	275	9.8
	Period total	458	469	-	927	100.0	271	41.1	791	265	12.8
											927

Table 36. Age, sex, and size composition of Pacific herring captured by commercial beach seines in Cape Denbigh Subdistrict, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	5	10	-	15	15.0	127	15.8	15	214	6.2	15
6/ 3- 6/ 9	5	4	14	-	18	18.0	164	22.7	18	234	7.6	18
	6	7	2	-	9	9.0	200	17.8	9	250	7.0	9
	7	14	11	-	25	25.0	242	28.1	25	262	10.0	25
	8	6	2	-	8	8.0	277	34.4	8	273	10.5	8
	9+	15	10	-	25	25.0	286	44.2	25	274	12.0	25
Period total		51	49	-	100	100.0	221	65.6	100	253	23.5	100

Table 37. Age, sex, and size composition of Pacific herring captured by commercial beach seines in Elim Subdistrict, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male (No.)	Female (No.)	Unknown (No.)		Total Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	-	-	
	4	4	6	-	10	5.2	164	46.0	10	222	12.7	10
6/10- 6/16	5	10	14	-	24	12.4	194	44.8	24	240	13.7	24
	6	11	8	-	19	9.8	221	24.6	19	251	9.5	19
	7	26	25	-	51	26.4	255	38.8	51	260	9.7	51
	8	19	10	-	29	15.0	284	44.0	29	267	13.3	29
	9+	35	25	-	60	31.1	293	46.1	60	269	14.4	60
Period total		105	88	-	193	100.0	255	57.5	193	259	17.8	193

Table 38. Age, sex, and size composition of Pacific herring captured by commercial beach seines in Cape Denbigh and Elim Subdistricts, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	5	10	-	15	15.0	127	15.8	15	214	6.2	15
6/3- 6/9	5	4	14	-	18	18.0	164	22.7	18	234	7.6	18
	6	7	2	-	9	9.0	200	17.8	9	250	7.0	9
	7	14	11	-	25	25.0	242	28.1	25	262	10.0	25
	8	6	2	-	8	8.0	277	34.4	8	273	10.5	8
	9+	15	10	-	25	25.0	286	44.2	25	274	12.0	25
Period total		51	49	-	100	100.0	221	65.6	100	253	23.5	100
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	4	6	-	10	5.2	164	46.0	10	222	12.7	10
6/10- 6/16	5	10	14	-	24	12.4	194	44.8	24	240	13.7	24
	6	11	8	-	19	9.8	221	24.6	19	251	9.5	19
	7	26	25	-	51	26.4	255	38.8	51	260	9.7	51
	8	19	10	-	29	15.0	284	44.0	29	267	13.3	29
	9+	35	25	-	60	31.1	293	46.1	60	269	14.4	60
Period total		105	88	-	193	100.0	255	57.5	193	259	17.8	193
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	9	16	-	25	8.5	142	35.9	25	217	10.0	25
All periods	5	14	28	-	42	14.3	181	39.5	42	238	11.7	42
	6	18	10	-	28	9.6	214	24.3	28	251	8.7	28
	7	40	36	-	76	25.9	250	35.9	76	261	9.7	76
	8	25	12	-	37	12.6	283	41.8	37	268	12.9	37
	9+	50	35	-	85	29.0	291	45.4	85	271	13.9	85
Total		156	137	-	293	100.0	244	62.5	293	257	20.1	293

Table 39. Age, sex, and size composition of Pacific herring captured by test commercial beach seines in Unalakleet Subdistrict, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	1.7	64	-	171	-	1
	4	6	16	-	22	37.9	144	29.3	22	213	24.5
5/27- 6/ 2	5	9	6	-	15	25.9	163	26.0	15	228	12.3
	6	2	2	-	4	6.9	225	20.4	4	246	9.2
	7	8	6	-	14	24.1	229	25.6	14	252	8.2
	8	1	-	-	1	1.7	232	-	1	264	-
	9+	-	1	-	1	1.7	278	-	1	264	-
	Period total	27	31	-	58	100.0	178	49.0	58	230	25.0
											58

Table 40. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in St. Michael Subdistrict, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean (gm)	Std. Dev. (gm)	Number Weighed	Mean (mm)	Std. Dev. (mm)	Number Measured
6/ 3- 6/ 9	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	4	9	-	13	6.1	146	22.2	13	219	11.1
	5	31	18	-	49	23.1	177	27.3	49	233	11.0
	6	18	16	-	34	16.0	228	23.5	34	251	8.3
	7	45	31	-	76	35.8	249	28.3	76	259	8.8
	8	11	8	-	19	9.0	293	30.3	19	269	9.0
	9+	7	14	-	21	9.9	327	52.6	21	278	11.2
	Period total	116	96	-	212	100.0	234	58.4	212	252	18.8
6/10- 6/16	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	22	19	-	41	16.9	131	30.8	41	213	9.5
	5	13	14	-	27	11.1	157	28.4	27	230	8.9
	6	24	9	-	33	13.6	199	31.9	33	247	11.1
	7	39	33	-	72	29.6	225	33.4	72	257	10.5
	8	20	14	-	34	14.0	253	33.3	34	267	11.3
	9+	19	17	-	36	14.8	272	47.1	36	274	12.7
	Period total	137	106	-	243	100.0	209	58.9	243	249	22.9
6/17- 6/23	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	2	-	2	1.7	68	6.4	2	179	5.7
	4	6	3	-	9	7.7	118	15.5	9	213	6.2
	5	21	21	-	42	35.9	149	15.6	42	230	6.8
	6	6	10	-	16	13.7	179	22.9	16	245	8.1
	7	13	15	-	28	23.9	203	23.5	28	255	9.2
	8	6	5	-	11	9.4	221	25.6	11	262	9.6
	9+	4	5	-	9	7.7	231	27.5	9	265	9.6
	Period total	56	61	-	117	100.0	175	41.7	117	242	19.1
All periods	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	2	-	2	.3	68	6.4	2	179	5.7
	4	32	31	-	63	11.0	132	28.4	63	215	9.6
	5	65	53	-	118	20.6	162	27.0	118	232	9.2
	6	48	35	-	83	14.5	207	32.9	83	248	9.7
	7	97	79	-	176	30.8	232	34.2	176	258	9.6
	8	37	27	-	64	11.2	259	39.4	64	267	10.5
	9+	30	36	-	66	11.5	284	56.7	66	274	12.4
	Total	309	263	-	572	100.0	211	59.6	572	249	21.0

Table 41. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Unalakleet Subdistrict, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
5/27- 6/ 2	4	2	6	-	8	47.1	123	15.8	8	211	8.6	8
	5	1	-	-	1	5.9	148	-	1	225	-	1
	6	1	-	-	1	5.9	198	-	1	246	-	1
	7	1	2	-	3	17.6	289	76.6	3	270	23.7	3
	8	1	2	-	3	17.6	265	34.1	3	267	8.1	3
	9+	-	1	-	1	5.9	304	-	1	285	-	1
	Period total	6	11	-	17	100.0	194	83.6	17	238	31.2	17
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
6/ 3- 6/ 9	3	1	1	-	2	1.0	92	42.4	2	175	48.8	2
	4	6	11	-	17	8.4	131	16.8	17	213	7.6	17
	5	5	15	-	20	9.9	165	26.9	20	226	25.8	20
	6	8	8	-	16	7.9	228	16.1	16	254	7.8	16
	7	33	21	-	54	26.6	248	32.9	54	260	8.7	54
	8	18	23	-	41	20.2	287	36.2	41	272	11.1	41
	9+	22	31	-	53	26.1	300	39.0	52	274	9.8	53
	Period total	93	110	-	203	100.0	248	64.6	202	258	24.6	203
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
6/10- 6/16	4	14	15	-	29	21.0	129	19.3	28	215	9.3	29
	5	17	9	-	26	18.8	157	18.7	26	231	8.0	26
	6	12	6	-	18	13.0	200	29.6	18	249	9.6	18
	7	19	15	-	34	24.6	223	25.6	34	257	7.7	34
	8	4	3	-	7	5.1	253	26.5	7	269	12.4	7
	9+	12	12	-	24	17.4	255	31.1	24	272	9.6	24
	Period total	78	60	-	138	100.0	195	52.7	137	245	22.3	138
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	1	-	2	.6	92	42.4	2	175	48.8	2
All periods	4	22	32	-	54	15.1	129	17.9	53	214	8.7	54
	5	23	24	-	47	13.1	160	22.5	47	229	17.8	47
	6	21	14	-	35	9.8	213	27.5	35	251	8.9	35
	7	53	38	-	91	25.4	240	35.2	91	259	9.2	91
	8	23	28	-	51	14.2	281	36.5	51	272	11.0	51
	9+	34	44	-	78	21.8	286	41.7	77	274	9.7	78
	Total	177	181	-	358	100.0	225	66.5	356	252	24.9	358

Table 42. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Cape Denbigh Subdistrict, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean Total	Std. Dev.	Number Weighed	Mean (gm)	Std. Dev.	Number Measured
5/27- 6/ 2	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	2	-	-	2	1.0	64	17.0	2	178	12.7
	4	39	35	-	74	35.4	130	10.9	74	213	5.3
	5	25	11	-	36	17.2	162	18.2	36	229	6.3
	6	9	12	-	21	10.0	206	30.5	21	245	9.4
	7	17	13	-	30	14.4	244	30.7	30	257	7.5
	8	7	9	-	16	7.7	289	38.3	16	267	10.8
	9+	13	17	-	30	14.4	307	34.2	30	273	9.4
	Period total	112	97	-	209	100.0	197	72.6	209	238	24.9
6/ 3- 6/ 9	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.4	102	-	1	202	-
	4	35	43	-	78	33.9	126	13.4	78	213	6.0
	5	23	17	-	40	17.4	162	24.3	40	231	7.8
	6	9	20	-	29	12.6	216	26.4	29	248	9.3
	7	27	15	-	42	18.3	238	33.7	42	257	10.2
	8	7	12	-	19	8.3	296	36.4	19	271	8.8
	9+	11	10	-	21	9.1	300	41.9	21	271	12.5
	Period total	113	117	-	230	100.0	194	69.3	230	238	23.9
6/10- 6/16	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	17	10	-	27	12.7	120	13.8	27	210	6.5
	5	34	12	-	46	21.6	160	23.0	46	232	9.2
	6	16	8	-	24	11.3	192	26.9	24	243	9.2
	7	41	18	-	59	27.7	228	26.7	59	257	7.8
	8	20	7	-	27	12.7	247	31.4	27	261	11.3
	9+	19	11	-	30	14.1	277	37.5	30	270	8.8
	Period total	147	66	-	213	100.0	205	56.5	213	246	20.7
6/17- 6/23	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	20	24	-	44	21.0	118	14.9	44	210	7.4
	5	25	22	-	47	22.4	159	21.2	47	230	7.7
	6	8	5	-	13	6.2	188	43.7	13	246	12.8
	7	22	11	-	33	15.7	226	30.2	33	255	9.1
	8	7	3	-	10	4.8	235	40.2	10	263	7.7
	9+	35	28	-	63	30.0	263	36.2	63	267	10.3
	Period total	117	93	-	210	100.0	198	63.5	210	243	23.8

- continued -

Table 42. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Cape Denbigh Subdistrict, Norton Sound District, 1986 (continued).

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male	Female	Unknown	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	3	-	-	3	.3	77	25.0	3	186	16.5	3
	4	111	112	-	223	25.9	125	13.7	223	212	6.3	223
All periods	5	107	62	-	169	19.6	160	21.7	169	231	7.9	169
	6	42	45	-	87	10.1	203	32.1	87	246	9.9	87
	7	107	57	-	164	19.0	233	30.5	164	256	8.7	164
	8	41	31	-	72	8.4	268	42.9	72	265	10.7	72
	9+	78	66	-	144	16.7	281	40.8	144	269	10.4	144
	Total	489	373	-	862	100.0	198	65.8	862	241	23.6	862

Table 43. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in St. Michael, Unalakleet, and Cape Denbigh Subdistricts, Norton Sound District, 1986.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length		
		Male (No.)	Female (No.)	Unknown (No.)		Mean Total	Std. Dev.	Number Weighed	Mean (gm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	2	-	-	2 .9	64 17.0	2	178	12.7	2	
	4	41	41	-	82 36.3	130 11.5	82	213	5.7	82	
5/27- 6/ 2	5	26	11	-	37 16.4	162 18.1	37	229	6.3	37	
	6	10	12	-	22 9.7	206 29.8	22	245	9.2	22	
	7	18	15	-	33 14.6	248 37.2	33	258	10.0	33	
	8	8	11	-	19 8.4	285 37.9	19	267	10.2	19	
	9+	13	18	-	31 13.7	307 33.7	31	274	9.5	31	
	Period total	118	108	-	226 100.0	196 73.3	226	238	25.3	226	
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	2	1	-	3 .5	95 30.6	3	184	38.0	3	
	4	45	63	-	108 16.7	129 16.3	108	213	7.2	108	
6/ 3- 6/ 9	5	59	50	-	109 16.9	169 26.9	109	231	14.2	109	
	6	35	44	-	79 12.2	224 23.9	79	250	8.8	79	
	7	105	67	-	172 26.7	246 31.3	172	259	9.1	172	
	8	36	43	-	79 12.2	291 34.7	79	271	10.1	79	
	9+	40	55	-	95 14.7	306 44.0	94	274	10.9	95	
	Period total	322	323	-	645 100.0	224 68.4	644	249	24.0	645	
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-
	4	53	44	-	97 16.3	127 24.0	96	213	8.9	97	
6/10- 6/16	5	64	35	-	99 16.7	159 23.4	99	231	8.7	99	
	6	52	23	-	75 12.6	197 29.6	75	246	10.3	75	
	7	99	66	-	165 27.8	226 29.5	165	257	9.0	165	
	8	44	24	-	68 11.4	251 31.6	68	265	11.7	68	
	9+	50	40	-	90 15.2	269 40.7	90	272	10.7	90	
	Period total	362	232	-	594 100.0	204 56.8	593	247	22.0	594	
	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	2	-	2 .6	68 6.4	2	179	5.7	2	
	4	26	27	-	53 16.2	118 14.8	53	210	7.3	53	
6/17- 6/23	5	46	43	-	89 27.2	154 19.2	89	230	7.2	89	
	6	14	15	-	29 8.9	183 33.5	29	245	10.3	29	
	7	35	26	-	61 18.7	215 29.5	61	255	9.1	61	
	8	13	8	-	21 6.4	228 33.2	21	262	8.5	21	
	9+	39	33	-	72 22.0	259 36.6	72	267	10.1	72	
	Period total	173	154	-	327 100.0	190 57.6	327	243	22.2	327	

- continued -

Table 43. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in St. Michael, Unalakleet, and Cape Denbigh Subdistricts, Norton Sound District, 1986
 (continued).

Sample Period	Age (years)	Sex			of Total	Percent			Weight			Std. Length		
		Male	Female	Unknown		Mean	Std. Dev.	Number Weighed	Mean	Std. Dev.	Number Measured	Mean	Std. Dev.	Measured
	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	4	3	-	7	.4	78	24.9	7	181	22.8	7		
	4	165	175	-	340	19.0	127	18.1	339	213	7.5	340		
All periods	5	195	139	-	334	18.6	161	23.8	334	231	10.3	334		
	6	111	94	-	205	11.4	206	31.7	205	248	9.8	205		
	7	257	174	-	431	24.1	234	33.1	431	257	9.2	431		
	8	101	86	-	187	10.4	268	40.8	187	267	11.0	187		
	9+	142	146	-	288	16.1	283	45.1	287	272	10.9	288		
	Total	975	817	-	1792	100.0	208	64.8	1790	246	23.5	1792		

Table 44. Age composition of Pacific herring total run, commercial harvest, and escapements in eastern Bering Sea fishing districts, Alaska, 1986.

Age	Togiak		Security		Goodnews		Nelson		Nunivak		Cape		Norton		Total	
			Cove		Bay		Island		Island		Romanzof		Sound			
	%	t	%	t	%	t	%	t	%	t	%	t	%	t	%	t
Total Run																
3	0.1	46	0.0	0	0.0	0	0.2	12	0.1	8	0.0	0	0.1	25	0.1	91
4	0.5	444	0.3	11	0.9	24	4.0	268	4.2	226	2.0	138	9.5	2418	2.6	3529
5	6.6	5667	9.4	317	8.3	226	9.6	636	10.0	543	10.3	701	12.1	3080	8.2	11170
6	4.1	3542	4.2	142	4.4	120	5.7	377	5.8	317	5.5	374	10.0	2545	5.4	7417
7	17.6	15127	17.5	589	16.7	454	15.3	1016	15.0	815	26.6	1807	28.3	7202	19.8	27010
8	39.6	34048	37.6	1261	34.2	930	27.5	1821	26.6	1450	24.8	1687	15.4	3920	33.1	45117
9+	31.5	27083	30.9	1037	35.5	967	37.6	2492	38.3	2082	30.8	2096	24.6	6261	30.8	42018
Total	100.0	85957	100.0	3357	3/ 100.0	2721	3/ 100.0	6622	3/ 100.0	5441	100.0	6803	3/ 100.0	25451	100.0	136352
Commercial Harvest																
3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.3	13	0.1	13
5	1.0	153	0.9	6	0.6	3	0.2	2	0.0	0	1.9	32	2.0	96	1.2	292
6	1.8	263	2.4	16	0.8	4	1.4	11	0.9	4	2.7	46	3.8	181	2.2	525
7	13.8	2046	22.5	153	16.6	84	17.0	137	13.5	63	27.7	468	33.4	1574	19.1	4525
8	46.3	6842	44.1	300	39.6	200	39.2	315	34.2	159	29.9	506	24.1	1137	40.0	9459
9+	37.1	5488	30.1	205	42.4	214	42.2	339	51.4	239	37.8	639	36.3	1710	37.4	8834
Total	100.0	14792	100.0	680	100.0	505	100.0	804	100.0	465	100.0	1691	100.0	4711	100.0	23648
Escapement																
3	0.1	46	0.0	0	0.0	0	0.2	12	0.2	8	0.0	0	0.1	25	0.1	91
4	0.6	444	0.4	11	1.1	24	4.6	268	4.5	226	2.7	138	11.6	2405	3.1	3516
5	7.7	5514	11.6	310	10.1	223	10.9	634	10.9	543	13.1	669	14.4	2984	9.7	10877
6	4.6	3279	4.7	126	5.2	116	6.3	366	6.3	313	6.4	327	11.4	2364	6.1	6891
7	18.4	13081	16.3	435	16.7	370	15.1	879	15.1	753	26.2	1339	27.1	5629	20.0	22486
8	38.2	27205	35.9	961	32.9	729	25.9	1507	25.9	1292	23.1	1181	13.4	2783	31.6	35658
9+	30.3	21595	31.1	832	34.0	753	37.0	2152	37.0	1844	28.5	1457	21.9	4551	29.4	33184
Total	100.0	71164	100.0	2675	100.0	2215	100.0	5818	100.0	4979	100.0	5111	100.0	20741	100.0	112703

1/ Percent by weight.

2/ Tonnes = t. Includes waste - 45 t in Togiak.

3/ Based on projection - biomass estimate not available.

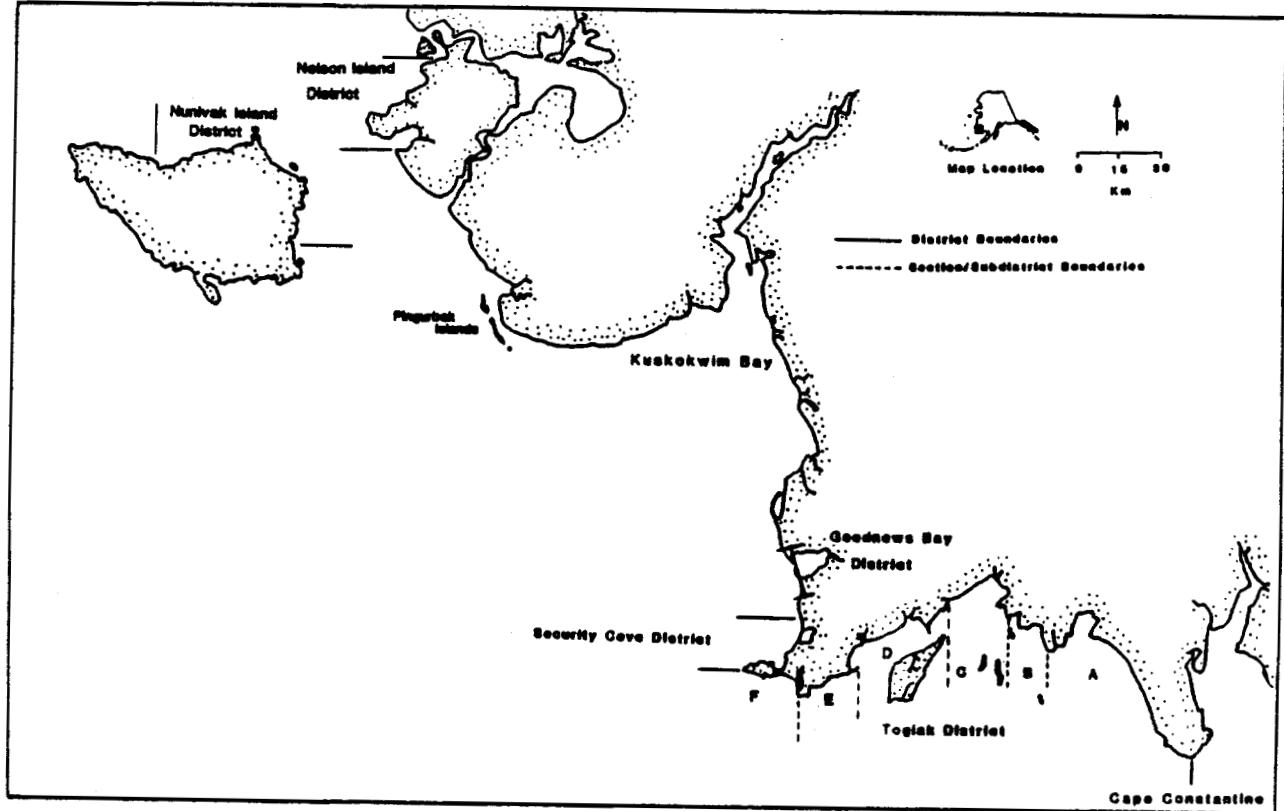


Figure 1. Togiak (A - Kulukak, B - Nunavachak, C - Togiak, D - Hagemeister, E - Pyrite Point, F - Cape Newenham Sections), Security Cove, Goodnews Bay, Nelson Island, and Nunivak Island Pacific herring commercial fishing districts, eastern Bering Sea, Alaska.

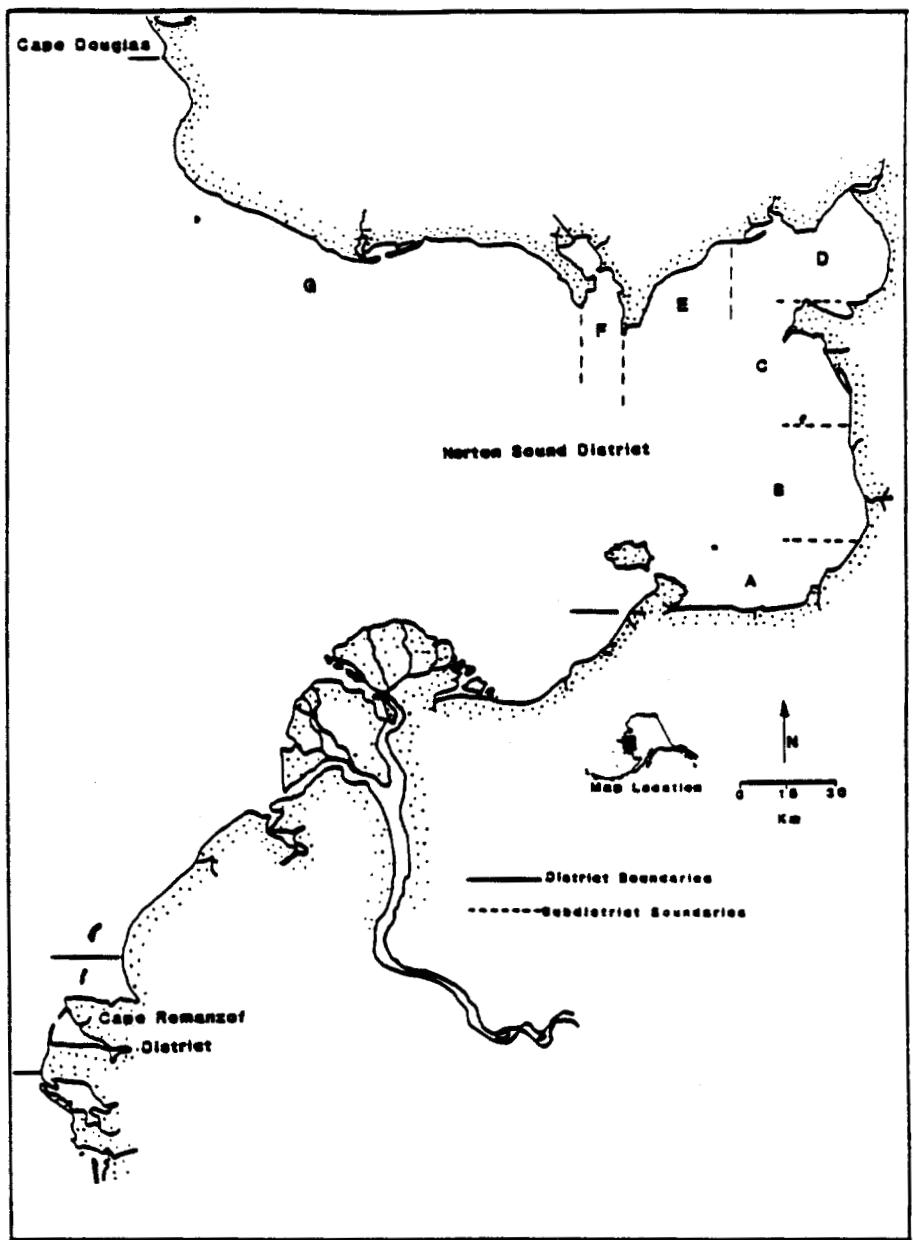


Figure 2. Cape Romanzof and Norton Sound (A - St. Michael, B - Unalakleet, C - Cape Denbigh, D - Norton Bay, E - Elim, F - Golovin Bay, G - Nome Subdistricts) Pacific herring commercial fishing districts, eastern Bering Sea, Alaska.

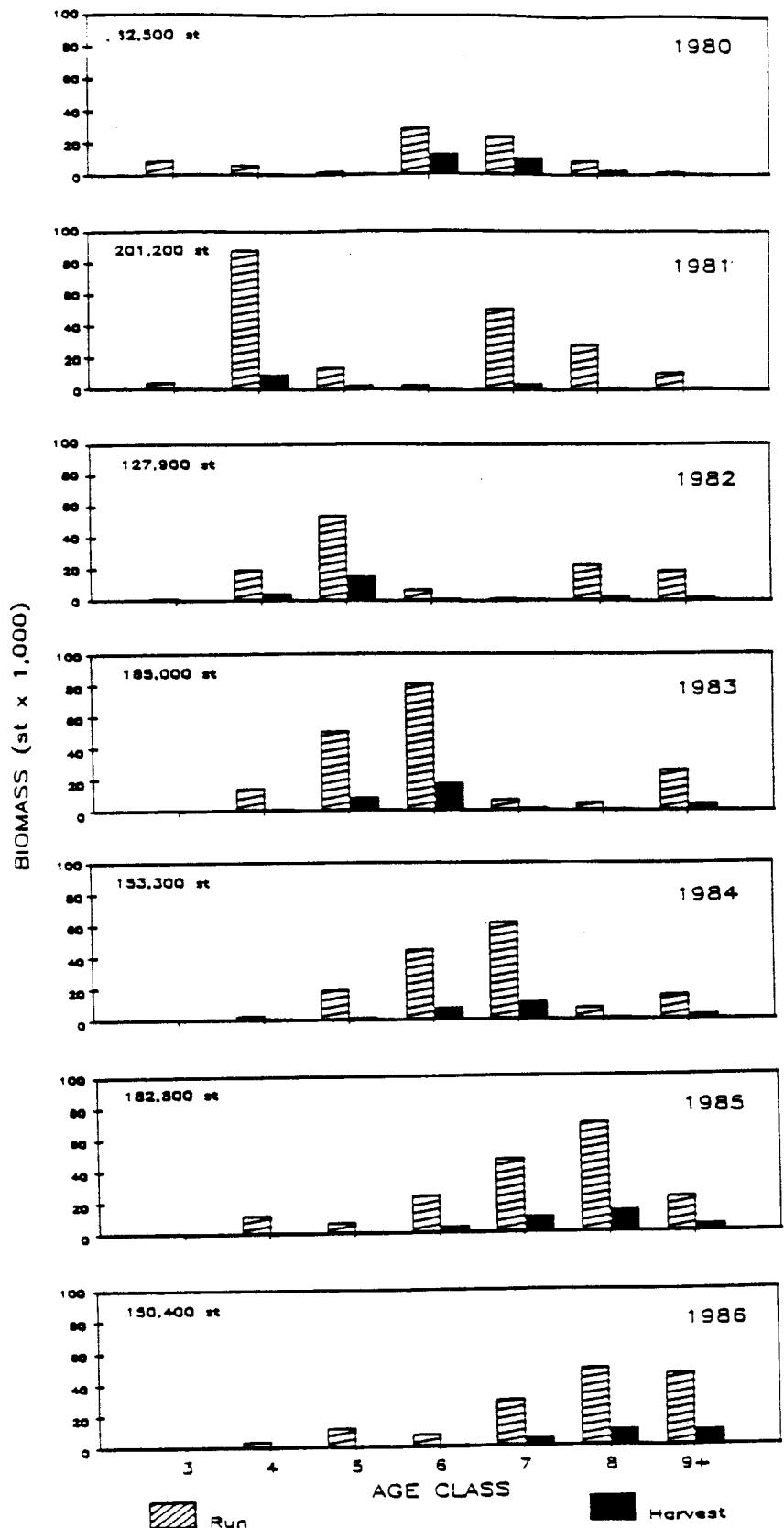


Figure 3. Age-class composition of the combined Pacific herring spawning biomass and harvest from selected commercial fishing districts (Togiak to Norton Sound inclusive), eastern Bering Sea, Alaska, 1980 - 1986.

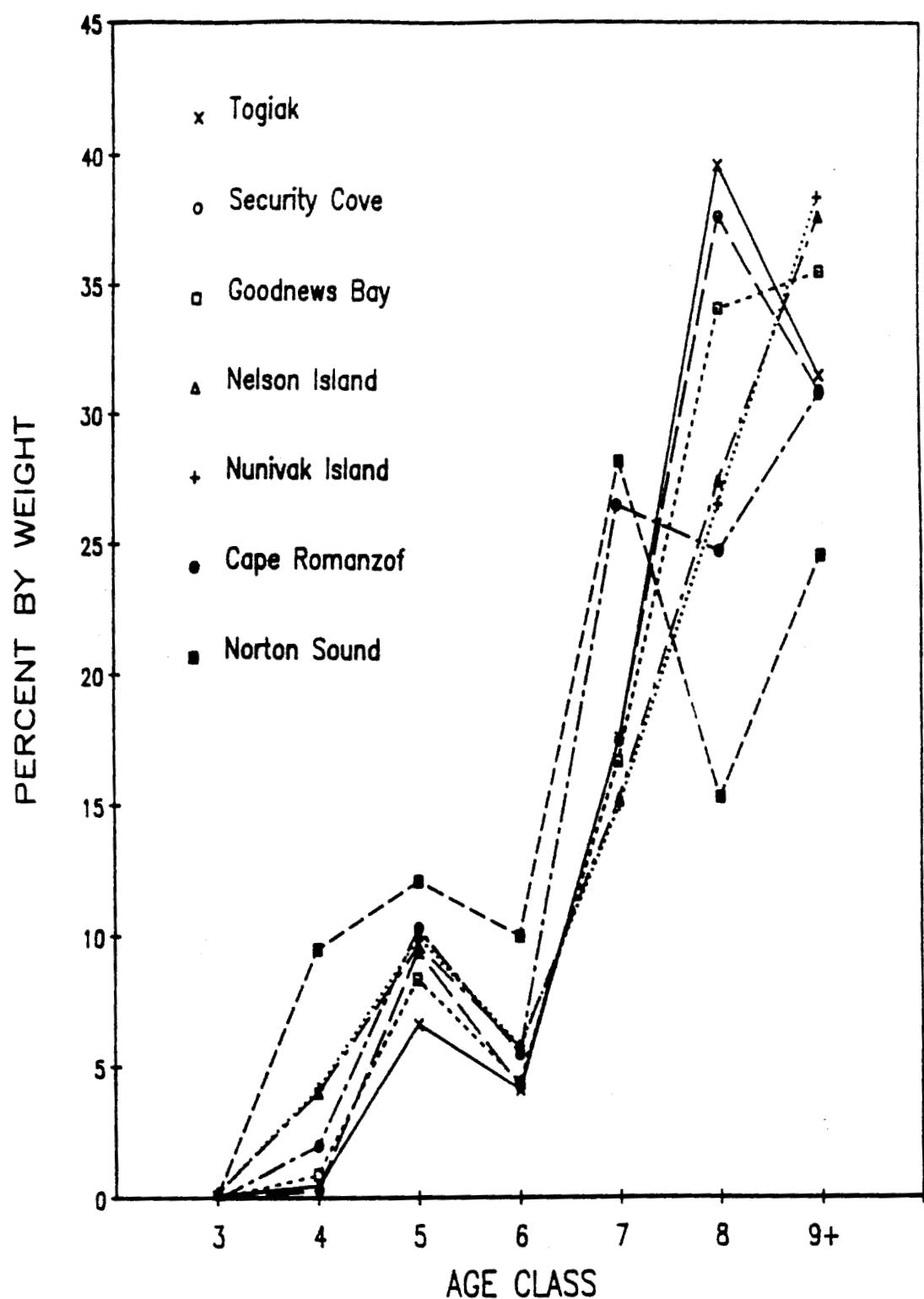


Figure 4. Age-class composition of the Pacific herring spawning biomass by commercial fishing district, eastern Bering Sea, Alaska, 1986.

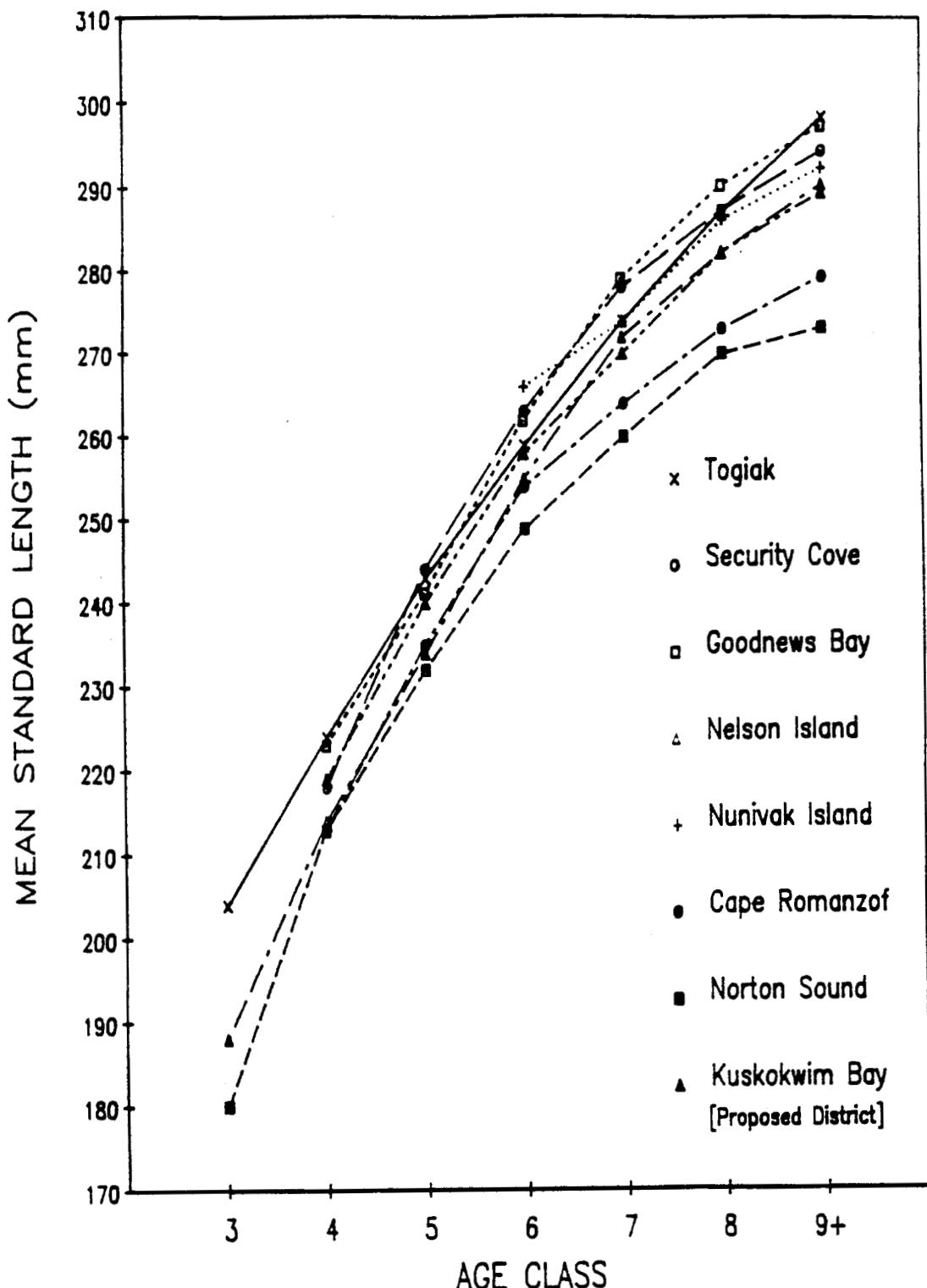


Figure 5. Mean standard length of sampled Pacific herring by age class and commercial fishing district, eastern Bering Sea, Alaska, 1986.

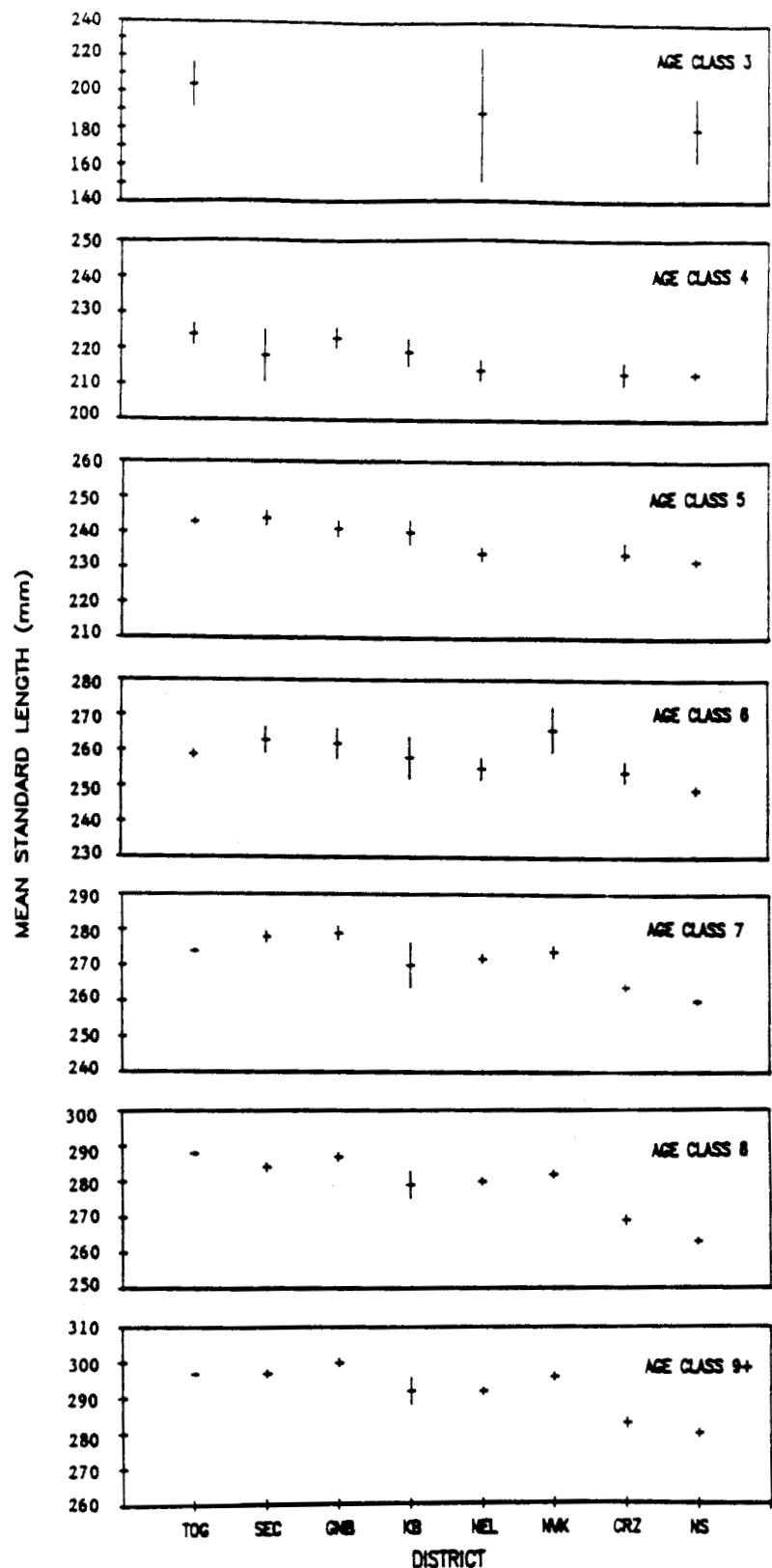


Figure 6. Mean standard length and associated 95% confidence interval of sampled Pacific herring by age class and commercial fishing district (TOG - Togiak, SEC - Security Cove, GNB - Goodnews Bay, KB - Kuskokwim Bay [proposed district], NEL - Nelson Island, NVK - Nunivak Island, CRZ - Cape Romanzof, NS - Norton Sound), eastern Bering Sea, Alaska, 1986.

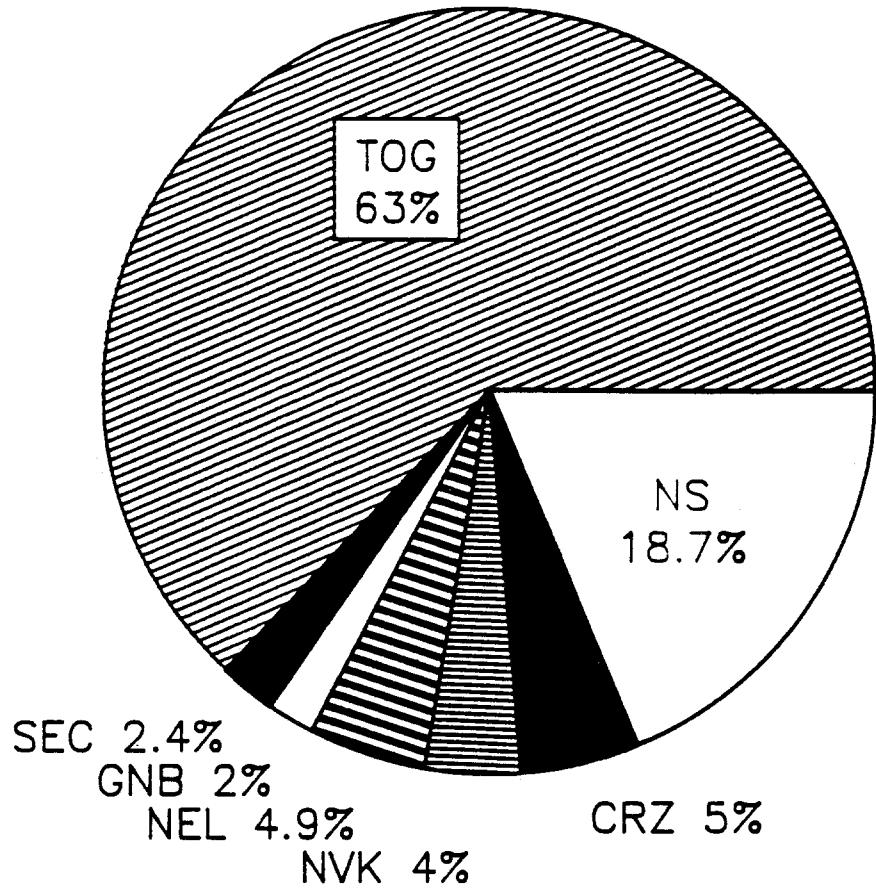


Figure 7. Pacific herring spawning biomass distribution by commercial fishing district, (TOG = Togiak, SEC = Security Cove, GNB = Goodnews Bay, NEL = Nelson Island, NVK = Nunivak Island, CRZ = Cape Romanzof, NS = Norton Sound), eastern Bering Sea, Alaska, 1986.

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